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REPORT
OF
THE SECRETARY OF WAR,

IN COMPLIANCE WITH

A resolution of the Senate of February 17, 1855, calling for a report and map of Colonel Fuller's survey of Red river, in the region of the raft.

FEBRUARY 24, 1855.—Read, ordered to lie on the table and be printed.

WAR DEPARTMENT,
Washington, February 22, 1855.

SIR: In answer to a resolution of the Senate of the 17th instant, requesting to be furnished with "the report of Colonel Fuller of his late survey of Red river in the region of the raft, with the accompanying map," I have the honor to transmit, herewith, a letter of the chief of the Topographical Bureau, submitting a copy of the report and map called for.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. J. D. BRIGHT,
President of the Senate, pro tem.

BUREAU OF TOPOGRAPHICAL ENGINEERS,
Washington, February 22, 1855.

SIR: In obedience to a resolution of the Senate of the 17th instant, I have the honor to submit a copy of the report and map of C. A. Fuller, esq., civil engineer and agent, of his late survey of Red river in the region of the raft.

Allow me to add that the report and maps of Mr. Fuller are now under consideration of the Board of Engineers on Lake Harbors and Western Rivers, who, with Mr. Fuller, are digesting a plan of operations which, as soon as completed, will be submitted to the War Department for its decision.

Respectfully, sir, your obedient servant,

J. J. ABERT,
Colonel of corps of Topographical Engineers.

Hon. JEFFERSON DAVIS,
Secretary of War.

LOUISVILLE, January 20, 1855.

SIR: I have the honor to transmit, herewith, the report of C. A. Fuller, esq., in relation to the improvement of Red river. The maps have been consigned to Adams' express for transmission to you.

Your obedient servant,

J. E. JOHNSTON,

Superintendent of Western River Improvements.

Colonel ABERT,

Chief of Topographical Engineers.

OFFICE RED RIVER IMPROVEMENTS,

Louisville, January 18, 1855.

SIR: I have the honor to submit the following report of my recent survey and examination of the raft of Red river and its vicinity, made pursuant to instructions received from the honorable Secretary of War, with a view of determining the best plan of improvement at this locality.

On my arrival at the raft region, late in October last, my attention was first directed to a careful reconnoissance of the river and its adjacent bayous and lakes, not only for the purpose of expediting the survey, but also of examining the routes proposed for avoiding the raft obstruction.

My survey was made during the low water of November ultimo, and embraced a region of country extending from the outlet of Red bayou to Shreveport, a distance of about seventy-five miles. The length of transit and level line run being $43\frac{37}{100}$ miles; and the distance examined in person through the bayous and lakes, and that portion of Red river between the foot of the raft and Shreveport, amounting to about 150 miles. Soundings, courses, and distances were taken throughout the whole extent thus reconnoitered, giving sufficient data for the construction of the accompanying maps, as well as enabling me to form a correct idea of the capacity of these outlets, either for the transportation of raft or for the purposes of navigation. The total fall of the low water surface of the river, from the head of Red bayou to Shreveport, is 36.60 feet. From Red bayou to the head of the present raft, a distance of four and a half miles, but little if any fall exists, the raft acting as a dam, and backing the water for some twenty or thirty miles above. The cross section lines, run from the river, show that the surface of the country has a gradual fall from the river westwardly of about five and a half feet to the mile, while the difference of level of the water surfaces is about three and three-quarters feet on the same section, a little over one foot to the mile; consequently at low water the river has a constant tendency to flow to the west through every natural outlet, deserting its old channel, which runs, as it were, upon a ridge, and seeking a lower level near the bluffs that border the western shores of the lakes; while at high water, the banks being submerged, the currents naturally follow the same direction.

The obstruction of the raft has thrown a large proportion of the water

of the river (about three-fourths) through two natural outlets (Dooley's and Red bayou) into Soda lake, affording a navigation around the raft, which is constantly improving as the action of the water widens and deepens these channels.

The channel of Red river, from the head of the present raft to Shreveport, besides being thus elevated, exhibits such an entire deficiency of width, depth, and fall, that *up stream* currents are found through more than one-half of its distance during every freshet. The bed is strewn with logs, stumps, &c. The stream is not only narrow but very tortuous, and although a navigable channel might be opened through it, at great expense, for short periods only, its want of capacity for carrying raft would be a fatal objection to the permanency of its navigation. Past experience has taught us the fact, that notwithstanding the large amount already expended by the government to remove this obstruction, no improvement of this channel can be permanent, and the raft still remains, increasing year by year, while the only navigation practicable is formed by avoiding the raft, and following the natural channels of the outlets.

That the raft can be removed there can be no doubt; it is merely a question of time and money. That a permanent navigation cannot be effected by this means is to my mind a fixed fact.

From ten to twelve thousand dollars per mile would be required to remove the raft; this for a distance of thirteen miles, the present length of the raft, would give for the sum necessary to remove it from \$130,000 to \$156,000. The raft makes from one and a half to two miles per year, and thus a constant force would be required to prevent or remove this accumulation, until the banks of the river above become sufficiently cleared from impending tress, either by cultivation or by means specially employed for the purpose.

This portion of Red river, therefore, having neither the capacity to carry raft, or capability of being made subservient to the purposes of navigation, forces us to look for other channels in the vicinity to attain our object. Of the natural outlets, Dooley's bayou appears most capable of improvement, and best adapted to our purpose, being the shortest, widest, and deepest; its currents strongest, and its soil the lightest alluvial, and consequently the easiest washed. I propose, as will be hereafter explained, to open the navigation through this bayou into Shiftail lake, (see map,) thence through Stumpy bayou to Soda lake, and thence through Soda lake and Twelve-mile bayou to Shreveport, making a distance of about forty miles, in which we will have the same fall as is found by the river in a distance of seventy miles, viz. 36.60 feet.

The present route from Red river above the raft is through Red bayou and Sewell's canal to Black bayou, and thence through Clear lake, uniting with my proposed channel at Stumpy bayou.

The channel of Red bayou is narrow, crooked, and shoal; the high water currents flow *across* the bayou, rendering high water navigation very dangerous, and incapacitating it from carrying raft. The channel of Black bayou is sluggish, and its outlet into Clear lake is obstructed by a sand-bar, on which there is but six inches water. The distance is greater than by the other route, giving less fall to the mile; while the banks of these bayous have less tendency to wash, and consequently

either to widen or to deepen. Its only advantage over Dooley's bayou is, that its outlet from Red river is above the head of the raft, while that of Dooley's bayou is about two miles below it.

Whichever plan of improvement may be adopted, it is of the utmost importance speedily to provide for the next season's raft, and prevent its accumulation upon the head of the present raft. This may be done either by opening the mouth of Elmer's bayou, clearing it of timber, and by a boom placed below it, turning the drift into this reservoir; or, by constructing a boom at the foot of Boom bend, so called, and making a cut-off across its neck. The latter plan I have already recommended in my communication of the 25th ultimo. It will be more expensive than the Elmer's bayou plan, but would serve as a depository of at least two years' raft, if not more. The cut-off proposed would be short, and could have been easily made before the annual raft rise, (which occurs generally in March,) provided immediate steps had been taken to carry it into execution. At this late date, however, I am fearful that time will not permit the use of the Boom bend reservoir, and I would therefore recommend that Elmer's bayou be at once prepared for the purpose. Five or six thousand dollars thus applied would save us the accumulation of a year's raft, which would cost from \$15,000 to \$20,000 to remove.

My plan of operations for diverting the channel, through Dooley's bayou, and thence through the lakes to Shreveport, is as follows:

Having provided for the coming season's raft by opening the mouth of Elmer's bayou, clearing out its channel and constructing the boom, I would then open the mouths of Dooley's bayou, and prepare the two miles of raft above, for stowing in the several outlets of the bayou, leaving open only that required for navigation; this would probably consume the next low water season. During the following high water season, the raft thus prepared could be stowed, and either Boom bend or Dutch John's lake prepared for the reception of another year's raft. The next low water season, the channel of the bayou could be cleared of its timber, and widened, when requisite, to Shiftail lake. The following high water season, the raft reservoir could be prepared either at Boom bend or the lake. The next low water season, Dooley's bayou being navigable, Stumpy bayou and Soda lake could be cleared of their stumps, the pass opened into Twelve-mile bayou, and the latter improved by clearing its banks of timber, and removing a few obstructions to its navigation. We would then have Dooley's bayou of sufficient capacity to carry raft, and the immense reservoirs of Shiftail and Soda lakes could be thrown open to receive it.

I propose to apply the unexpended balance of appropriation for the improvement of Red river, (about \$92,000,) as follows:

Preparing Elmer's bayou for raft, and constructing boom.....	\$6,000
Cutting and sawing two miles of raft, and preparing the outlets of Dooley's bayou for its reception.....	25,000
Removing and placing this raft, and preparing Dutch John's lake	30,000
Improving Dooley's bayou and Shiftail lake.....	20,000
Contingencies, including alterations and repairs of dredge boat	11,000

Amounting to.....	<u>92,000</u>
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The expenditure of the above amount would give us open navigation to Stumpy bayou, and would provide for a raft accumulation of about three years.

To complete the improvement to Shreveport, an additional amount will be required, as follows:

Improving Stumpy bayou, Soda lake, and Twelve-mile bayou	\$30,000
Preparing Boom bend, including boom, &c.....	15,000
Contingencies, say	5,000
Amount required to complete the improvement.....	<u>50,000</u>

The above estimate does not include the cost of a steam machine boat, which would be required, provided a dredge boat cannot be transferred for this purpose.

In conclusion, I avail myself of this occasion to express my acknowledgements to Colonel J. B. Gilmer, of Bossies parish, La., for his invaluable assistance during the progress of the survey. His personal services, combined with his thorough knowledge of the whole region examined, together with the facilities, freely tendered, for transportation of camp equipage, &c., from point to point, enabled me to prosecute the survey without delay, and to bring it to a speedy completion.

My thanks are also due to my assistants, Messrs. B. Noevell and R. Moore, and to Captain Thomas Moore, my pilot, for their untiring attention to their respective duties.

Respectfully submitted,

CHARLES A. FULLER,
United States Agent and Engineer.

Lieutenant Colonel J. E. JOHNSTON,
Topographical Engineers, Supt. of Western River Improvements.

[SUPPLEMENTARY REPORT.]

WASHINGTON, February 17, 1855.

SIR: At the request of your Board, I take leave to submit the following supplementary report, in reference to the improvement of Red river, in the vicinity of the raft.

As the season for the annual freshet in Red river is now close at hand, and as the new raft may be expected to commence forming before steps can be taken for its prevention, I am induced to modify the plan of improvement suggested in my report of the 18th ultimo, and to submit the following project of operations, together with a new estimate, applicable to the proposed change.

The plan of improvement recommended in the report above referred to, was to remove the two miles of raft between its head and the head of Dooley's bayou, to improve the channel of that bayou to Shiftail lake, and thence through Stumpy bayou, Soda lake, and Twelve-mile bayou to Shreveport. The change of plan now proposed is to suffer the existing raft to remain untouched; to allow the expected new raft to fill up that portion of the river remaining open between Elmer's bayou and the head of the raft, (the raft running but from three to four

days at each annual spring freshet,) and to open a communication by means of a cut between Red river, at or near the head of Elmer's bayou, with the inlet of Dooley's bayou into its first small lake, (see map.) From the junction of the proposed cut with Dooley's bayou, thence to Shreveport, no change from the original plan is contemplated.

My plan of operations will then be as follows :

The head of Elmer's bayou to be at once prepared by cutting the standing timber, &c., to receive any portion of the coming raft that cannot be stowed in Red river, below our proposed outlet. On the subsidence of the spring freshet, the cut to be made connecting the river with the inlet of Dooley's bayou into the first small lake, and any new raft that may have formed in Red river, in the vicinity of Elmer's bayou, to be cut and prepared for stowing.

Dutch John's lake, or other receptacle, to be prepared for the new raft of 1856. During the high water of that year, the surplus raft prepared as above, to be stowed in the head of Elmer's bayou, and the raft of 1856 placed in its receptacle by means of a boom, &c. During the ensuing low water season, the small lakes and Dooley's bayou to be improved to Shiftail lake, and Shiftail lake and Stumpy bayou cleared to the pass.

During the progress of the work such additional surveys as may be deemed necessary should be made above and below the raft.

A steam machine boat, similar to the Gopher and Dragon, formerly used for snagging in the western rivers, to be constructed at once, together with two hand machine boats, with yawls, skiffs, &c. The boats to be employed in removing obstructions in the shape of snags, stumps, floating rafts, &c., between Shreveport and the head of Elmer's bayou.

ESTIMATE.

Preparing Elmer's bayou for raft, and purchase of tools, &c.	\$4,000 00
Cost of steam machine boat, complete	20,000 00
Cost of two hand machine boats, complete	6,000 00
Making cut, preparing raft receptacle, including boom, &c., and cutting and preparing raft in vicinity of Elmer's bayou	25,000 00
Stowing raft in Elmer's bayou, and new raft in receptacle	5,000 00
Improving small lakes, Dooley's bayou, Shiftail lake, and Stumpy bayou	20,000 00
Removing dangerous obstructions between Stumpy bayou and Shreveport	5,000 00
Contingencies, including surveys, &c.	9,000 00
Amounting to	<u>94,000 00</u>

Respectfully submitted.

CHARLES A. FULLER,
United States Agent and Engineer.

Lieut. Col. JAMES KEARNEY,
Corps Topographical Engineers,
Pres. Board Engineers Lake Harbors and Western Rivers.

MAP
OF
RED RIVER
WITH ITS BAYOUS AND LAKES

in the vicinity of the

RAFT

Surveyed by CHAS. A. FULLER U.S.A. & Co.

assisted by

B. NORVELL and R. MOORE

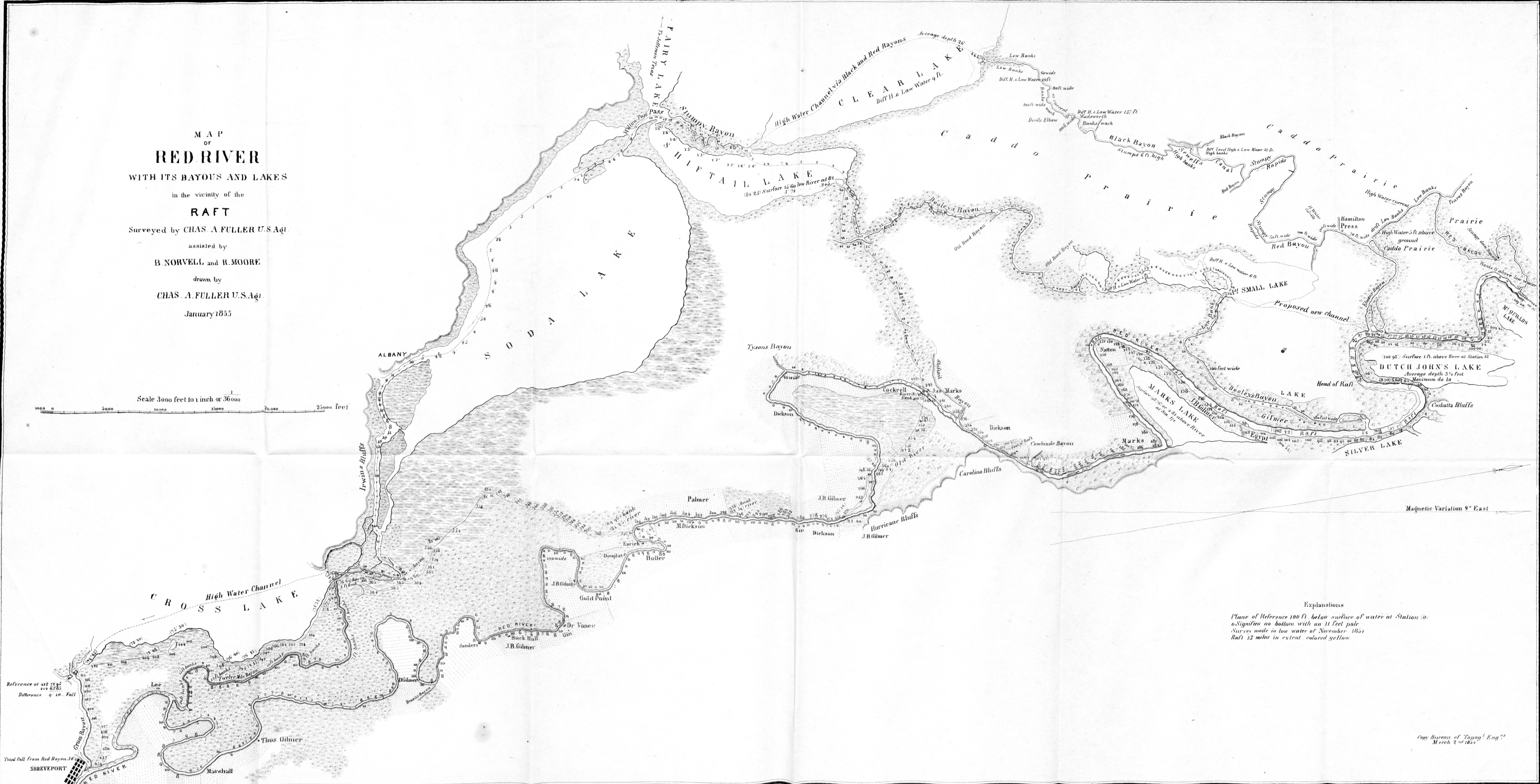
drawn by

CHAS. A. FULLER U.S.A. & Co.

January 1855

Scale 3000 feet to 1 inch or 36000

1000 0 5000 10000 15000 20000 25000 feet



Magnetic Variation 9° East

Explanations

Plane of Reference 100 ft. below surface of water at Station (0)
o Signifies no bottom with an 11 feet pole
Survey made in low water of November 1854
Raft 13 miles in extent colored yellow

Copy Bureau of Topog. Eng.
March 2nd 1855